AMENDMENTS TO THE CLAIMS

Claims 1-67 (Canceled).

68. (Currently Amended) A system comprising:

an in vivo sensor device comprising a plurality of structural elements defining the in-vivo sensor device, the plurality of structural elements being composed of a first material, the first material having ~~at least one of~~ a first transition temperature and a first transition coefficient to expand from a first diametric state to a second diametric state, at least one region of the plurality of structural elements being composed of a second material, the second material having ~~at least one of~~ a second transition temperature and a second transition coefficient higher than ~~the at least one of~~ the first transition temperature and the first transition coefficient allowing for a change in the geometry or conformation in the second diametric state~~, the second material and the first material being selected so that at least one of a geometry and a conformation of the in vivo sensor device changes~~ upon application of at least one of an internal force and an external force to the in vivo sensor device, wherein the change in geometry or conformation changes the positioning of the structural elements relative to the geometry of the second material; and a detection mechanism configured to ~~measure~~ detect ~~the at least one of a geometry and conformation change of~~ the change in the geometry or conformation of the in vivo sensor device.

69. (Previously Amended) The system of claim 68, wherein the first material comprises at least one of a shape memory material, a superelastic material, a plastically deformable material, an elastically deformable material, a stainless steel and a nickel-titanium alloy.

70. (Currently Amended) The system of claim 68, wherein the second material comprises at least one of a shape memory material and a superelastic material[[,]].

71. (Previously Amended) The system of claim 68, wherein the second material has a martensite transition temperature that is higher than a martensite transition temperature of the first material.

72. (Currently Amended) The system of claim 68, wherein the ~~in-vivo sensor~~ the second material is configured to measure at least one physiological condition.

73. (Previously Presented) The system of claim 72, wherein the physiological condition is fluid flow rate.

74. (Previously Presented) The sensor system of claim 72, wherein the physiological condition is temperature.

75. (Previously Presented) The sensor system of claim 72, wherein the physiological condition is plaque.

76. (Previously Presented) The sensor system of claim 72, wherein the physiological condition is an electrochemical change.

77. (New) A system comprising:

an in vivo sensor device comprising a plurality of structural elements defining the in-vivo sensor device, the plurality of structural elements being composed of a first material, the first material having a first transition temperature and a first transition coefficient to expand from a first diametric state to a second diametric state, at least one region of the plurality of structural elements being composed of a second material, the second material having a second transition temperature and a second transition coefficient higher than the first transition temperature and the first transition coefficient, the second material changing from a first position to a second position in the second diametric state upon application of at least one of an internal force and an external force to the in vivo sensor device, wherein the first position is coplanar with the surface of the structural elements and the second position projects outwardly from the surface of the structural elements; and a detection mechanism configured to detect the second position of the in vivo sensor device.

78. (New) The system of claim 77, wherein the first material comprises at least one of a shape memory material, a superelastic material, a plastically deformable material, an elastically deformable material, a stainless steel and a nickel-titanium alloy.

79. (New) The system of claim 77, wherein the second material comprises at least one of a shape memory material and a superelastic material.

80. (New) The system of claim 77, wherein the second material has a martensite transition temperature that is higher than a martensite transition temperature of the first material.

81. (New) The system of claim 77, wherein the second material is configured to respond to at least one physiological condition.

82. (New) The system of claim 81, wherein the physiological condition is fluid flow rate.

83. (New) The system of claim 81, wherein the physiological condition is temperature.

84. (New) The system of claim 81, wherein the physiological condition is plaque.

85. (New) The system of claim 81, wherein the physiological condition is an electrochemical change.